Remarks

Concerning the status of the prosecution

In the current office action, Examiner states the following:

> Applicants arguments filed 9/15/2004 have been considered and not found persuasive, However, in order to advance prosecution by avoiding unnecessary arguments over what does, and what does not comprise a database system, supra new art rejection is provided. As best examiner is able to ascertain, above new art rejection more accurately reads on the claimed invention. Nevertheless, it is expedient to consider the essence of applicants' arguments presented in previous response by applicant. (current Office action, page 7, bottom)

It is not clear to Applicants' attorney where this leaves Applicant. Ordinarily, citation of new references after a traversal means that the traversal was persuasive and that the rejections on the basis of the previous references have been rendered moot. Here, Examiner says that the traversal was not persuasive and says nothing whatever about the status of the previous references. In going forward with the prosecution on the basis of the new references, Applicants' attorney is expressly treating the prior references as having been rendered moot by the traversal and is in no way conceding the correctness of Examiner's rebuttal of the traversal.

The amendments to the claims

Examiner will immediately see that the claims as amended are fully supported by the Specification as filed.

The rejections under 35 U.S.C. 112, first paragraph

The basis which Examiner sets forth for this rejection is as follows:

> Claim 5 recites 'determining that the request is preferably executed in another database system of the plurality.' The Specification does not include a clear and concise description of the manner in which the computer implemented method of the invention determines a preferable process of execution. (current response, page 2)

Current claims 5-24 were filed in the present patent application in Applicants' response to the first Office action in the application. The response was filed 12/10/2003. At page 8, lines 4-12 of their response of 12/10/2003, Applicants pointed out that the Specification fully supported the new claims:

> Further experience with the redirection mechanisms disclosed in the present patent application has resulted in the realization that using the redirection mechanisms as disclosed in 5 the present patent application to deal with the lack of an object specified in a request received in a database system belonging to a distributed database system is only one species of a generic invention, namely using the redirection mechanisms in any circumstance where it becomes apparent during execution of the request that "the request is preferably executed at least in part in another 10 database system" (claim 5, line 7) of the distributed database system. The disclosure in the application as filed of the species that deals with lacking objects of course supports the generic claim.

The manner in which the "species that deals with lacking objects" "determines a preferable process of execution" is explained in great detail at pages 15, line 22 through page 22, line 21. The application as filed thus provides a completely enabling disclosure of the inventions of claims 5 and 15 and Examiner's rejection of claims 15 and 22 as lacking an enabling disclosure is without foundation. It should be further pointed out here that examples of situations in which redirection occurs even when an object is present in a database system are given at page 13, lines 8-14 and page 19, lines 6-12 of the Specification as filed.

The rejections under 35 U.S.C. 112, second paragraph

Applicants have amended their claims to overcome these rejections. The use of "a particular database system" and "another database system" or "the other database system" should solve Examiner's difficulties with antecedent basis for "the database system". Applicants have further amended their claims to make it clear that there is only one "execution" being spoken of in the claims. The execution begins in the "particular database system", but may be redirected to the "other database system", as clearly set forth in the claim as amended. As for Examiner's complaint that it is "not clear how the request can be executed when the object is lacking from the [distributed] data base system", there is no requirement that a *claim* deal with every eventuality. The claim clearly points out what happens if the execution is "preferably done at least in part in another database system of the plurality", and that is all that is required.

Examiner will immediately see that the amendments do not materially alter the scope of the claims.

The rejections under 35 U.S.C. 102

Interpreting applicants' claims

In the course of the lengthy prosecution of this application, it has become apparent that one reason for Examiner's difficulties is that he is not reading Applicants' claims in the light of the Specification. To be sure, it is Examiner's duty to give the claims their broadest reasonable interpretation, MPEP 2111, but this "broadest reasonable interpretation" must be "consistent with the specification":

> During patent examination, the pending claims must be "given *>their< broadest reasonable interpretation consistent with the specification." >*In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000).< (MPEP 2111, Rev 2, May 2004, 2100-46)

As Applicants have already pointed out several times in this prosecution, the terms "distributed database system" and "database system" have particular meanings in the Specification, and it is these meanings that determine how the terms are to be interpreted in the claims. FIG. 1 shows a prior-art distributed database system 101; as is clear from page 9, line 19-col. 10, line 2, it consists of a plurality of database systems 103, 119, and 121. It is also clear that these database systems all execute requests written in a query language, in this case, SQL.

Should Examiner find that it is advantageous to do so, Applicants' attorney is of course ready to discuss amendments to the claims which would make the meanings that the claim terms have in the Specification apparent on the face of the claim.

What Bogantz discloses

The Bogantz reference primarily concerns provisioning a database system that has a number of replicated databases, but also includes a description of how queries that reference records that are being updated in a replicated database are handled. In Bogantz, provisioning and querying are handled by components 104 and 106 (FIG. 2) that perform these functions for all of the databases 101..103 in the system. Provisioning and querying go on simultaneously. In order to maintain consistency among the databases 101..103 and to ensure that all queries performed during

provisioning return consistent results, provisioning system 104 proceeds as described at col. 6, lines 12-35: when a record in databases 101...103 is to be updated, one of the databases is selected to be updated first and the new data is sent to each of the databases. The unselected databases also receive a pointer to the selected database. When the provisioning results in the replacement of a record in an unselected database, the pointer is placed in a field in the original record and the replacement record is placed in a memory queue. What happens if querying system 16 attempts to query the original record in the time between the time that the replacement record is placed in the memory queue and the time the replacement record actually replaces the original record in the database is explained at col. 6, line 59- col. 7, line 10:

> Accordingly, any queries from the querying system **106** that access records that are in the process of being updated are redirected to the selected database. If during query processing by the database queried by the querying system **106**, it is determined that the record that the user requested is being updated by the provisioning system **104**, the queried database will halt processing of the request and launch a request back to the database querying system **106** to transmit this query to the specified selected database. The requery is completely transparent to the user.
>
> The pointer field in each record is used to indicate that an update is in progress. A non-zero value in the pointer field indicates that an update of the record is in progress. The non-zero value actually corresponds to the index of the current selected database. Accordingly, if the pointer field of a record being queried has a non-zero value, the database will halt processing of the query and launch a request back to the querying system **106** to send the query to the selected database indicated by the pointer field. The pointer field therefore performs the dual function of indicating that the record is being updated and identifying the database which is the selected database. It will be appreciated by those skilled in the art that any appropriate predetermined value may be used to indicate that the record is not being updated.

Why Bogantz does not anticipate claim 5

The first issue here is whether Bogantz can reasonably be characterized as a "distributed database system" as that term is used in Applicants' Specification and claims. In Applicants' distributed database system, each of the database systems belonging to the distributed database system is capable of processing requests on its own; in Bogantz, queries for all of the databases in the system are done by database querying system 106 and updating for all of the databases is done by provisioning system 104. In light of this, Bogantz' system is better characterized as a single database system that contains multiple databases, but not multiple *data base systems*. If it is so characterized, it is of course simply not relevant to Applicants' claims, which are all directed to

methods and apparatus employed in "a distributed database system that includes a plurality of database systems".

As one would expect, the differences between Bogantz and Applicants' invention of claim 5 are also reflected in the body of claim 5. The second method step requires that "that part of the execution [be redirected] to the other database system". As is clear from the location in Bogantz cited above, what Bogantz's database does when it receives a query for a record that has a pointer field that is non-null is return the query to querying system 106, which then redirects it to the database specified in the pointer. Because Bogantz' data base is not a "database system" and the redirection is done by system 106 rather than by Bogantz' database, Bogantz does not perform the step of redirecting "during execution of the request in the particular database system" and does not redirect to the "other database system. Bogantz thus does not disclose all of the limitations of Applicant's claim 1, and therefore cannot anticipate the claim. As Examiner will easily understand, the same reasoning also applies with regard to claim 15.

The dependent claims

Dependent claims 6-14 and 16-24 are of course all patentable as being dependent from patentable claims; additionally, certain of the dependent claims include limitations that are not disclosed by the references singly or in combination and are therefore patentable in their own rights.

Claims 6 and 19

These claims add the limitation that the step of determining "determines that an object required for execution of the request is lacking in the particular database system". In his rejection of these claims, Examiner refers Applicants to col. 6, lines 42-50, which merely disclose that query messages which "access a record in transition" are returned to querying system 206 for rerouting. The "record in transition" is of course still in the database, so what is detected is not that the object "is lacking", but that though present, it is in transition and therefore *cannot be used.* Consequently, Bogantz does not disclose the added limitation of these claims.

Claims 7 and 16

The added limitations here are that the particular database system "places the request in a form

required for execution in the particular database system" and then modifies the form when it has been determined that redirection is required. In his rejection, Examiner refers to reference number 110 in a non-existent FIG. 3. Reference number 110 is a processor in provisioning system 104 (FIG. 2) which determines which of the databases is the selected database and then causes the pointer to the selected database to be set in the records in transition. In applicants' claims 7 and 16, it is the "particular database system" that is performing the method step, and what is being modified is the *request*, not a field in a record that may be retrieved by the request. Bogantz therefore also does not disclose the added limitations of these claims.

The rejections under 35 U.S.C. 103

These rejections all combine Bogantz with additional references to obtain all of the limitations of the dependent claim being rejected. Since Bogantz does not show all of the limitations of the claims from which the rejected claim is dependent, Examiner has not made his *prima facie* case of obviousness and the rejections under 35 U.S.C. 103 are without foundation.

Claims 8 and 17

Additionally, with regard to claims 8 and 17, the added limitations are that "the request includes an SQL statement" , that "the form required for execution is a cursor" and that "the cursor is marked for redirection". All that Taylor discloses about any of this is the following:

> [0171] Database **801** is an SQL database, which may be generated by any of a number of commercially available applications (e.g., Oracle). In Database **801**, User Column **802** contains names or other identifiers corresponding to users who have data stored in the database. Password Column **803** contains a password for each of the users listed in User Column **802**. Data Fields **804** contain data, also corresponding to the user listed in the corresponding field in Column **802**. Again, Database **801** is simplified for purposes of illustration, since multiple records of data might be associated with each user.

Consequently, Examiner has not made his *prima facie* case with regard to claims 8 and 17.

Claims 9 and 18

The added limitations here are that the request "includes a call to a procedure object" and "the call

is rewritten in the form required for execution as a remote procedure call directed to the other database system." The total disclosure concerning these limitations in Souder is the following:

> Typically, remote accesses between nodes are performed using a conventional data manipulation language such as SQL or other conventional protocol. Alternatively, the remote database can use a remote procedure call (RPC) to activate a data access procedure on the local database in a synchronous RPC context. In a synchronous context, the remote database waits for the RPC to finish before completing the transaction. An RPC can also be used to queue a request on the local system in an asynchronous RPC context. In an asynchronous context, the remote database does not wait for the RPC to finish before completing the transaction. The use of a remote procedure call is well known to those of ordinary skill in the art.

There is nothing whatever here about *rewriting* a call to a procedure object as a remote procedure call, as required by the limitations. Consequently, Examiner has not made his *prima facie* case with regard to claims 9 and 18.

Conclusion

Applicants have amended their claims to overcome the rejections under 35 U.S.C. 112, second paragraph, have traversed the rejections under 35 U.S.C. 112, first paragraph, and have traversed the rejections under 35 U.S.C. 102 and 103. Applicants have thereby fulfilled the requirements of 37 C.F.R. 1.111(b) and respectfully request that that Examiner allow the claims as provided by 37 C.F.R. 1.111(a). No additional fees are believed to be required for this amendment. Should any be, please charge them to deposit account number 501315.

Respectfully submitted,

Attorney of record,
Gordon E. Nelson
57 Central St., P.O. Box 782
Rowley, MA, 01969,
Registration number 30,093
Voice: (978) 948-7632
Fax: (866) 723-0359

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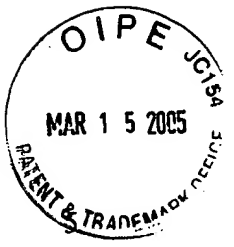

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Gordon E. Nelson
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